Reg. No ..... Name **23P2049**

M. Sc. DEGREE END SEMESTER EXAMINATION : MARCH 2023

SEMESTER 2 : AQUACULTURE AND FISH PROCESSING

COURSE : **21P2AQCT08 : GENETICS AND BIOTECHNOLOGY OF FIN FISH AND SHELL FISH**

(For Regular - 2022 Admission and Supplementary - 2021 Admission)

Duration : Three Hours Max. Weights: 30

PART A

Answer any 8 questions **Weight: 1**

1.	Breeding ingression	(An, CO 1, CO 4)
2.	Vernalisation of oocytes	(U, CO 3)
3.	Causes of mutation	(An, CO 1)
4.	Recombinant vaccines	(U, CO 8)
5.	Glofish	(U)
6.	Androgenesis	(U, CO 3)
7.	Lethal genes in fish	(U)
8.	Conserved sequence	(U, CO 6)
9.	Reporter genes	(U, CO 6)
10.	Bioreactors	(U, CO 5)

(1 x 8 = 8)

PART B

Answer any 6 questions **Weights: 2**

11.	Role of steroids in sex reversal	(An, CO 1, CO 2)
12.	Different techniques in the production of transgenic fishes	(U, CO 6)
13.	Morphlogical features of cyprinid hybrids and compare with parental population	(U, CO 4)
14.	Chromosome Banding Techniques	(An, CO 2, CO 3)
15.	Cytogenetics techniques	(U, CO 3)
16.	Bioremediation in aquaculture.	(U, CO 5)
17.	Gene regulation	(An, CO 1, CO 2, CO 3)
18.	Solid state fermentation	(U, CO 6)

(2 x 6 = 12)

PART C

Answer any 2 questions **Weights: 5**

19.	Explain monosex population and strategies adopted to produce the same.	(An, CO 2)
20.	Methods of transgenic fish production	(U, CO 6, CO 7)

21. Development of fish cell line and its applications (U, CO 7)

22. PCR and its applications in disease diagnosis (U, CO 5, CO 6)

(5 x 2 = 10)

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	Understand Induced breeding ,genetic improvement of the stock for better strains of cultural organisms	An	1, 3, 11, 17	6
CO 2	Genetic engineering and biotechnological principles for crop improvement	An	11, 14, 17, 19	11
CO 3	Understand the principles of genetic technique in cytogenetics	U	2, 6, 14, 15, 17	8
CO 4	Describing different hybridization techniques	U	1, 13	3
CO 5	Describing different types of probiotics and its application in aquaculture	U	10, 16, 22	8
CO 6	Introduction to tools and techniques in modern biotechnology	U	8, 9, 12, 18, 20, 22	16
CO 7	Analyze the developments of fish cell lines and their application in aquaculture	An	20, 21	10
CO 8	Understanding the different types of vaccination in fish genetics	U	4	1

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;